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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Naohiro YOSHIDA

Attn: PCT Branch

Application No. New U.S. Patent Application

Filed: August 25, 2006

Docket No.: 129200

For: GAS LEAK DETECTION DEVICE AND METHOD FOR SAME

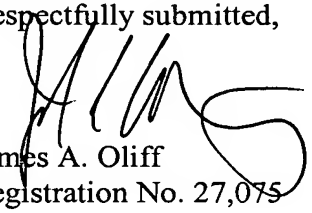
**TRANSMITTAL OF TRANSLATION OF THE ANNEXES TO THE
INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Attached hereto is a translation of the annexes to the International Preliminary Examination Report (Form PCT/IPEA/409). The attached translated material replaces the material in the claims (pages 28-31).

Respectfully submitted,


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CLAIMS

(Amendment under PCT Art. 34)

We claim:

1. (Amended) A gas leak detection device for a fuel cell system
5 comprising a main valve in a fuel gas supply source, comprising:
a shutdown valve provided in a fuel gas supply channel downstream of
said main valve;
a plurality of pressure monitoring devices with different pressure ranges
that monitor a pressure in said fuel gas supply channel between said main valve and
10 said shutdown valve;
a depressurization treatment device that depressurizes the inside of
said fuel gas supply channel; and
a determination device that monitors a variation of pressure in a sealed
space of said fuel gas supply channel formed between said main valve and said
15 shutdown valve after said main valve and said shutdown valve have been closed and
determines an operation state of said main valve based on the variation of pressure
in said sealed space, wherein
in said depressurization treatment, said fuel gas supply channel is
depressurized until the pressure enters a pressure range in which the pressure can
20 be monitored in said plurality of pressure monitoring devices.
2. (Amended) The gas leak detection device according to claim 1, wherein
said pressure monitoring device in a certain position is selected to
monitor the pressure according to the pressure attained by depressurization of said
25 fuel gas supply channel.

3. The gas leak detection device according to claim 1, wherein
a variation of pressure in said sealed space is determined as an
abnormally of said main valve in the case where the pressure rises to or above a
predetermined value.

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4. The gas leak detection device according to claim 1, wherein
a variation of pressure in said sealed space is determined as a gas leak
from said fuel gas supply channel in the case where the pressure drops to or below
the predetermined value.

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5. The gas leak detection device according to claim 1, further comprising
a recovery tank that recovers said fuel gas that flows through said fuel
gas supply channel; and
drive means that recovers said fuel gas into said recovery tank during
said depressurization treatment.

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6. The gas leak detection device according to claim 1, wherein said
shutdown valve and said main valve are closed during depressurization downstream.

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7. (Amended) A gas leak detection device, comprising:
a fuel gas supply source;
a main valve that shuts down a fuel gas from said fuel gas supply
source;
a shutdown valve provided in a fuel gas supply channel downstream of
said main valve;

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a plurality of pressure monitoring means with different pressure ranges that monitor a pressure in said fuel gas supply channel between said main valve and said shutdown valve;

depressurization treatment means that depressurizes the inside of said
5 fuel gas supply channel; and

determination means that monitors a variation of pressure in a sealed space of said fuel gas supply channel formed between said main valve and said shutdown valve after said main valve and said shutdown valve have been closed and determines an operation state of said main valve based on the variation of pressure
10 in said sealed space, wherein

in said depressurization treatment, said fuel gas supply channel is depressurized to a pressure range in which the pressure can be monitored in said plurality of pressure monitoring device.

15 8. A gas leak detection method for a fuel cell system comprising a main valve in a fuel gas supply source, comprising the steps of:

closing said main valve, while conducting a depressurization treatment of the downstream side of a fuel gas supply channel;

closing a shutdown valve provided in said fuel gas supply channel,
20 while conducting the depressurization treatment of the downstream side;

monitoring a variation of pressure in a sealed space of said fuel gas supply channel formed between said main valve and said shutdown valve, after said main valve and said shutdown valve have been closed;

and determining an operation state of said main valve based on a
25 variation of pressure in said sealed space, wherein

in the step of shutting down said shutdown valve, said shut down valve is shut down when said sealed space is depressurized to a pressure range in which the pressure can be detected in a pressure sensor for detecting a pressure in said sealed space.

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9. The gas leak detection method according to claim 8, wherein
when a plurality of pressure sensors with different pressure ranges are provided in said fuel gas supply channel,

in the step of monitoring said variation of pressure, one of said pressure
10 sensors is selected for pressure detection according to the pressure in said sealed space.